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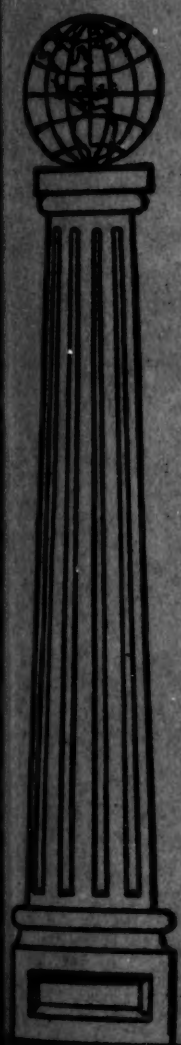

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THE GEOGRAPHY OF THE NORTHERN INTERIOR OF THE UNITED STATES

HELEN M. STRONG

Bureau of Foreign and Domestic Commerce,
Washington, D. C.

The Northern Interior is a region of complex activities, the outgrowth of a rich endowment in the physical resources fundamental to agriculture, manufacturing, and commerce.

THE AREA OF THE REGION OUTLINED

According to state lines, this region extends from the eastern boundary of Ohio and Kentucky to the western limits of Kansas, Nebraska, South Dakota, and North Dakota. The western portion of the last four named states, however, in reality belongs to the semi-arid Great Plains Region, and the Pittsburgh area in Pennsylvania, together with the Lake Erie Shore in Pennsylvania and in New York State to Buffalo, Kentucky, and the coal areas of West Virginia, belong economically to the Northern Interior.

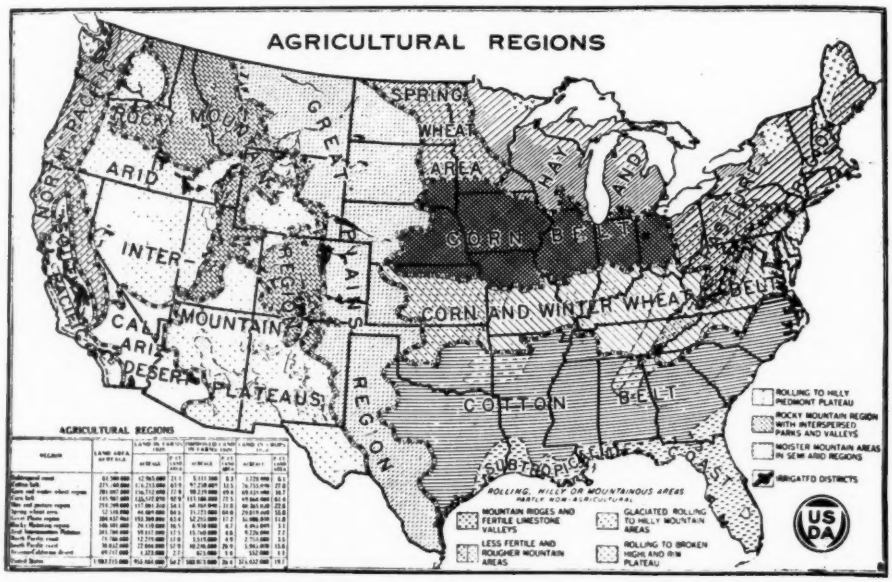
PHYSICAL CONDITIONS

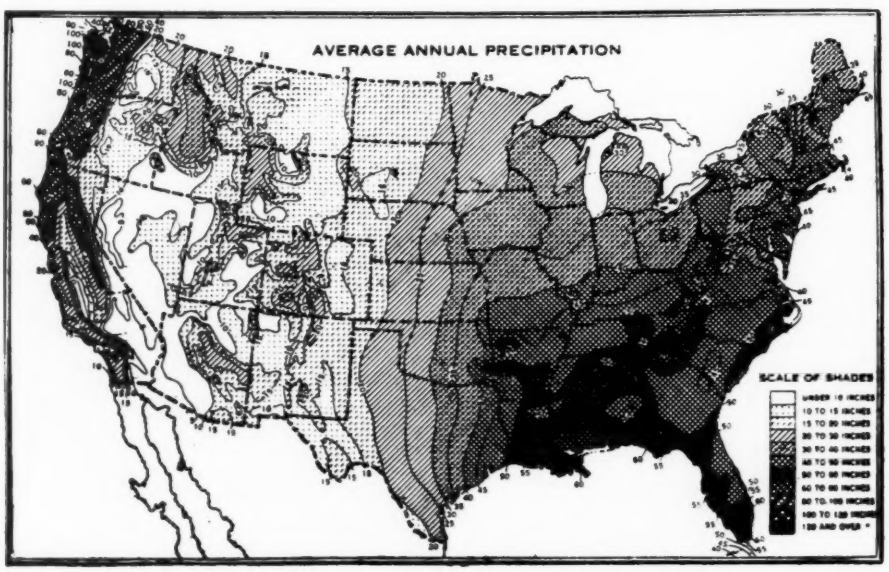
This region is endowed with an unusual accumulation of conditions favorable for agriculture: humid climate, with plenty of rain during

NOTE: The tables in the following article indicate one way in which the United States Census, and other government statistical publications, notably the Yearbooks of the United States Department of Agriculture and of the United States Department of Commerce; the Statistical Abstract, and Commerce and Navigation, published by the Bureau of Foreign and Domestic Commerce; and publications of the United States Weather Bureau and Geological Survey may be used to secure significant geographical facts. When these data are placed in their appropriate relations, it is possible to interpret human responses to geographic conditions with a basis of definite facts, instead of uncertain generalizations. Geography teachers from the grades thru the university will find it an advantage to use these statistical sources for population, agriculture, soils, manufacturing, mineral resources, production, and climatic data.

The maps used in illustrating this article, with the exception of the coal map, were furnished by the Bureau of Agricultural Economics, United States Department of Agriculture. Especial attention should be given to the grafs and statistics accompanying each map. These illustrations are contained in a separate of the 1921 Yearbook of the United States Department of Agriculture, entitled "Graphic Summary of American Agriculture." Probably the best way to secure this bulletin is thru the Congressman from your local district.

the growing season which is long enough for all cereals of mid-latitudes, and a broad expanse of fairly level land having deep, fertile soil. Added to these is a location accessible to the Great Lakes and to the lowland

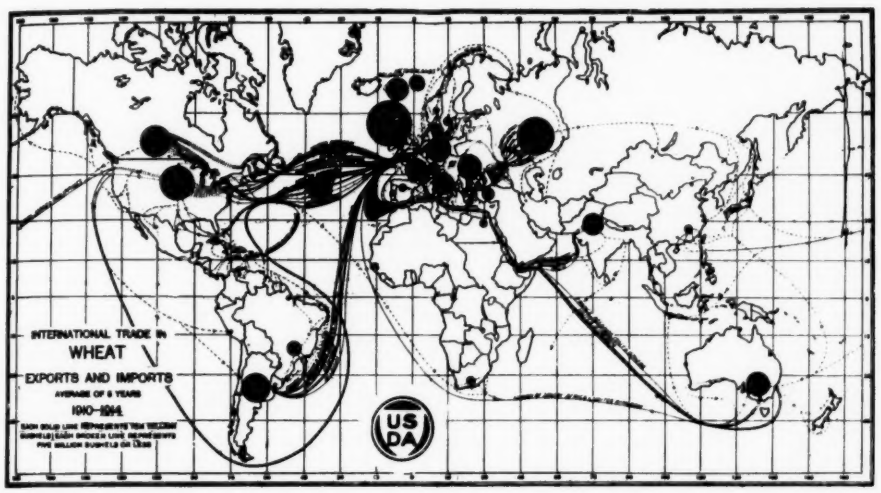




route thru the Mohawk-Hudson valleys. This level highway across New York is at no place more than 500 feet above sea level, and is the only low level pathway from the Interior across the Appalachians

to the Atlantic coast. It connects at New York with the North Atlantic Trade Route, the shortest ocean highway to Northwest Europe, where exists the world's chief demand for agricultural products.

The lands included within this region are characterized by humid and sub-humid conditions, having sufficient precipitation to raise crops with ordinary farming methods. The shortest growing season, 110 days, is in the northwestern part of the region, along the Canadian border, and in northern Minnesota, Wisconsin and Michigan. In fact, the northwestern portion as a whole has a shorter growing season than the southeastern part, where, along the southern boundaries of Ken-

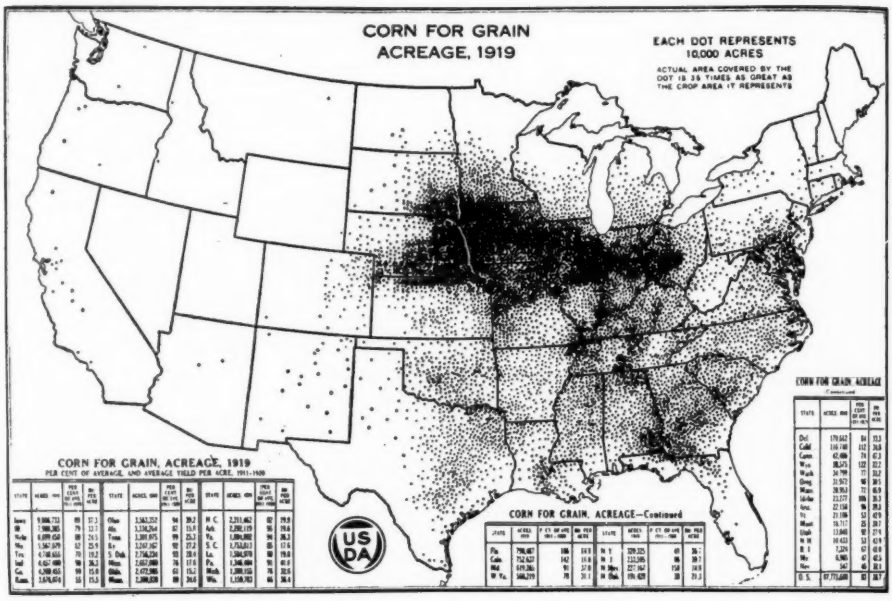


tucky, Missouri and Kansas, 190 days during the year are free from frost. The southern portions of Michigan, Wisconsin and Minnesota, and the states to the south, during the summer, have warm nights as well as warm days, and this is the prime climatic element in locating the Corn Belt thru the central part of the area. The northern part of the section with its cooler summer nights and shorter growing season is the Spring Wheat Region, while a belt along the southern part of the region, due to its longer growing season raises corn and winter wheat.

A gently rolling, nearly level land surface is an important asset of this area, both for agriculture and for transportation. The only portions having rough topography are southeastern Ohio, West Virginia, eastern Kentucky, the Ozark Region of Missouri and the southern tip of Illinois, northern Michigan, Wisconsin and Minnesota, and the unglaciated region of southwestern Wisconsin and adjacent portions

of Iowa and Minnesota. Railroads and roads run in fairly straight lines, and great fills, tunnels, and trestles are not required in road or railroad construction. Traveling thru different regions of the country successively, but emphasizes this important advantage in the Northern Interior—square mile after square mile of fairly level, well drained land.

The glaciers pushed out over most of the area, depositing a deep soil with mineral elements well ground and mixed, and leached to a less degree than water-borne alluvium. Thus, the broad areas of fertile soil. Deposition from the continental ice-sheet exceeded erosion so


CORN FOR GRAIN
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PER CENT OF AVERAGE, AND AVERAGE YIELD PER ACRE, 1911-1920
CORN FOR GRAIN, ACREAGE—Continued
CORN FOR GRAIN ACREAGE
USDA

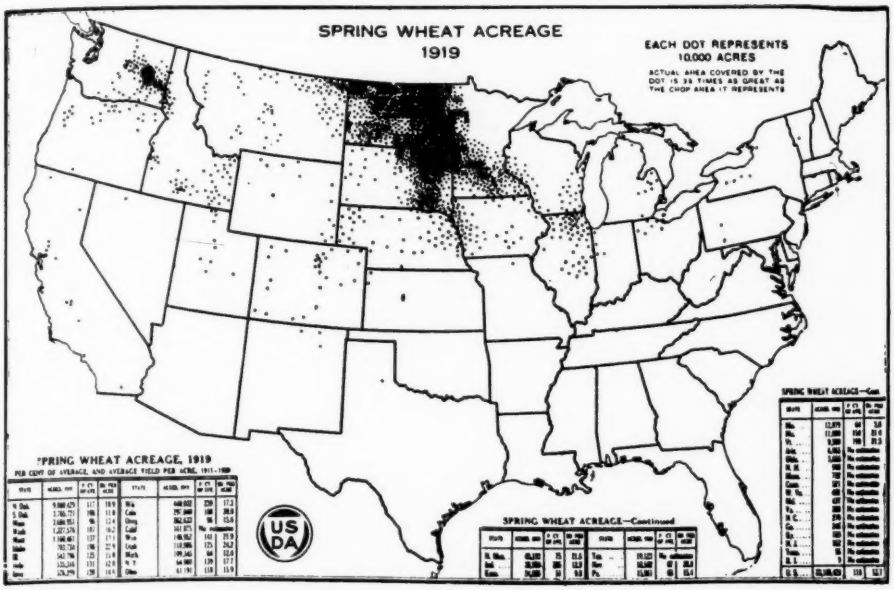
that deep, pre-glacial valleys and rough land in many places were buried deep under the till. The Cuyahoga River at Cleveland is a small, sluggish stream flowing across the fill of a pre-glacial valley which was broader and deeper than the Niagara Gorge today.[1]

Broad lowland routes from the Great Lakes southward across the Desplaines-Illinois, Maumee-Wabash, Cuyahoga-Tuscarawas divides were worn out when the lakes at different periods during the Pleistocene Period drained southward to the Mississippi and Ohio Rivers. These level ways have been used successively by Indian trails, pioneer roads, canals, and today the railroads and main traveled auto routes lie along the same old valleys.

[1] W. Upham, Preglacial and Pastglacial Valleys of the Cuyahoga and Rocky Rivers, *Bull, Geol. Soc. of America*, 1896, VII, 328, 332

THE APPEARANCE OF THE REGION

Broad, sweeping fields of corn with some wheat dominate the landscape in the Corn Belt. Comfortable farm houses, many of them sug-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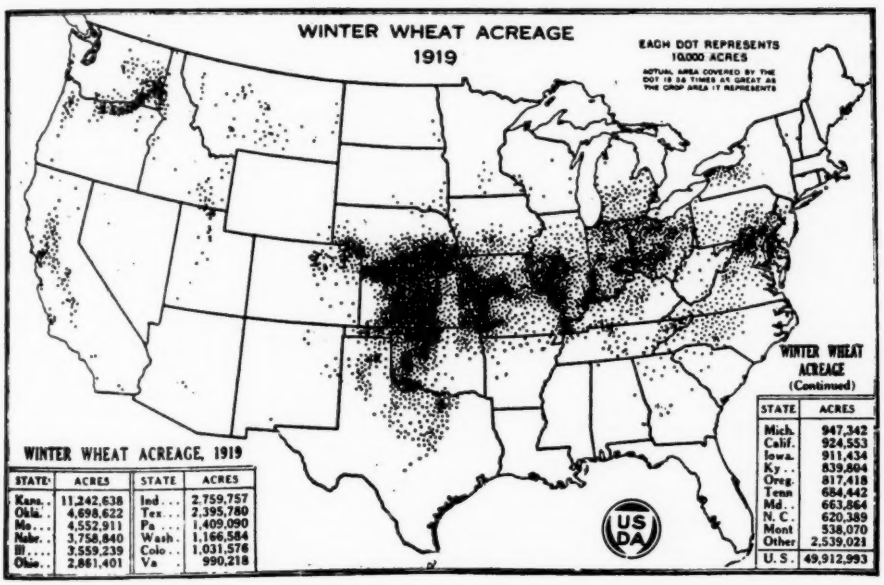


gesting New England in architecture, well-built, spacious barns, and silos make up the farm groups, of which several can be seen from al-

most any place on the roads of the Corn Belt, for the average size of farms for the heart of the Corn Belt (Ohio, Indiana, Illinois and Iowa) is 121 acres.[2] The towns are relatively close together, many of them being built around the courthouse square, for many of the original settlers, coming from New England, were directed to this part of the country by the lowland highway along the Mohawk Valley and the

TABLE I

Agricultural Importance of the Northern Interior[1]

All figures are in millions

		Northern Interior Quantity	All United States Quantity	% of Quantity in Northern Interior	Northern Interior Value	All United States Value	% of Value in Northern Interior
Corn	Acres	49	88	55.6	.....	.....	....
Hogs	Number	36	59	61.0	695	989	70.3
Dairy Products					712	1,481	48.1
Dairy Cattle	Number	15	31	48.4	.....	.....	....
Beef Cattle	Number	16	35	45.7	.....	.....	....
All Cattle	Number	31	66	47.0	1,780	3,652	48.7
All Livestock		...	...	....	2,528	4,925	51.3
Wheat	Acres	50	73	68.5	.....	.....	....
Oats	Acres	29	38	76.3	.....	.....	....
Barley	Acres	5	6	83.3	.....	.....	....
Rye	Acres	6	8	75.0	.....	.....	....
All Cereals		...	...	....	4,480	6,941	64.5
Hay & Forage	Acres	54	96	56.3	1,290	2,523	51.1
Total		...	...	....	11,485	20,511	56.0
Total all farm crops		...	...	....	6,295	14,755	42.7
Land in Farms	Acres	375	956	39.2	33,386	54,830	60.9
Improved Land	Acres	259	503	51.5	.....	.....	....
All farm property		...	...	....	45,237	77,924	58.1

[1] Fourteenth Census of the United States, 1920, Vol. VI, Part 1. Statistics cover census divisions East and West North Central.

southern shore of Lake Erie, or they used the Great Lakes to reach Cleveland, Toledo, Detroit, Chicago, Milwaukee and other ports. In the Spring Wheat area the view is across acre after acre of level wheat fields stretching away to the horizon with farm houses far apart, since there, the average size of farms is 446 acres.[3] The Southern part of the region in the Corn and Winter Wheat Belt, excepting Kansas, has a more rolling surface than the Corn Belt. The houses there, in many

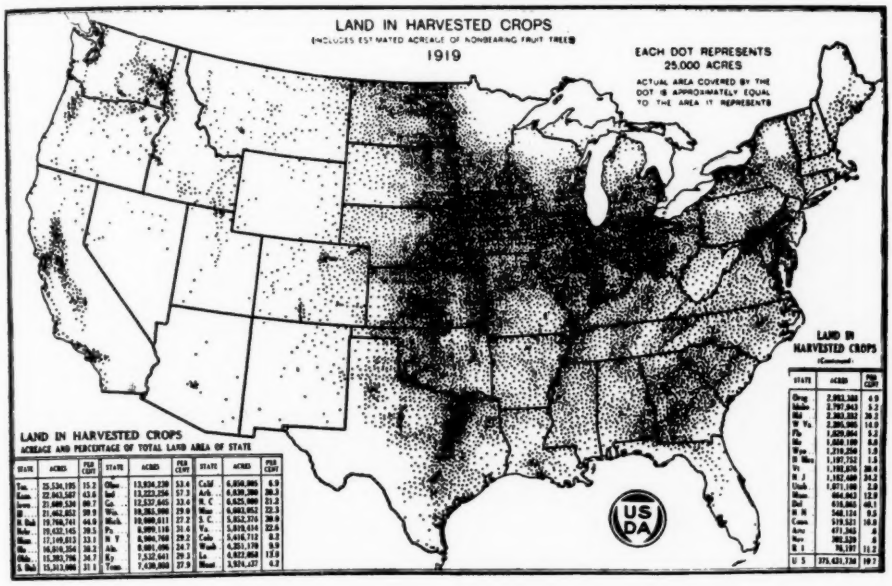
[2] Fourteenth Census of the United States, 1920, Vol. VI, Part 1, 292, 334, 376, 534

[3] Fourteenth Census of the United States, 1920, Vol. VI, Part 1, 626

instances, have long galleries and pillared porticoes, showing the southern influence in their architecture, as the region is the transition zone between corn and cotton.

AGRICULTURAL IMPORTANCE OF THE NORTHERN INTERIOR

The Northern Interior is the most important agricultural section of the United States. Within it is produced 42.7 per cent of the value of all farm crops. It possesses 58.1 per cent of the value of all farm property including land, buildings and other improvements, and 60.9 per cent of the value of farm land. Two-fifths of the farm acreage and

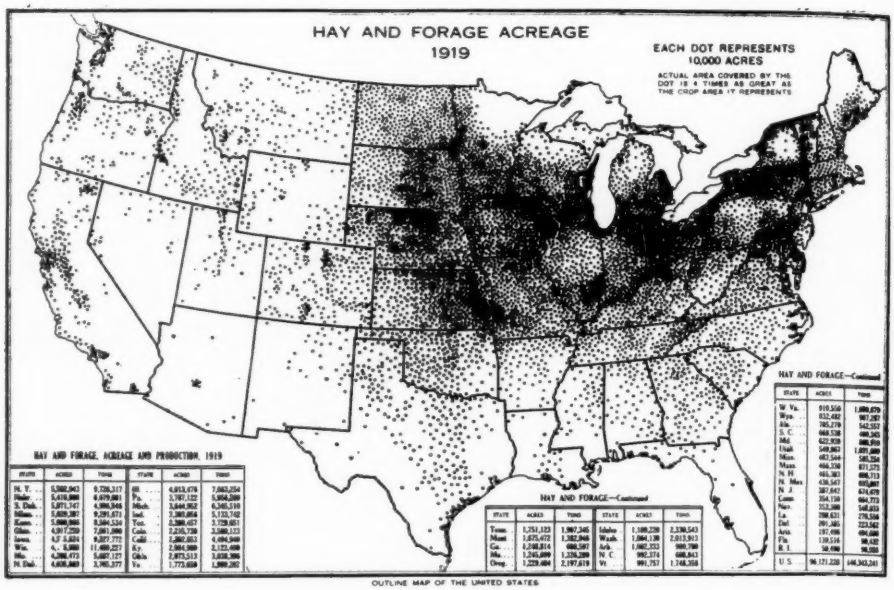


more than half of the improved land of the country are in this region (Table 1). All of this agricultural wealth is the direct outgrowth of the physical and economic conditions outlined. Probably no other region possesses so rich a development in its farm lands.

Climate, soil, and surface have decided that this shall be a corn, wheat, and hay country. A survey of the maps will indicate that it is the chief center of acreage and production for corn and wheat, and one of the chief centers for hay and forage. According to acreage, 55.6 per cent of the corn, 68.5 per cent of the wheat, 76.3 per cent of the oats, 83.3 per cent of the barley, 75 per cent of the rye, and 56.3 per cent of the hay and forage in the United States are located here.

Much of the wheat moves to foreign markets, for this grain keeps well, stores compactly for shipping, and has relatively high nutritive

worth and money value per unit bulk. For such a commodity, the location of the area with reference to lowland routes to the coast and the short highway to Europe, favors export.


HAY AND FORAGE ACREAGE
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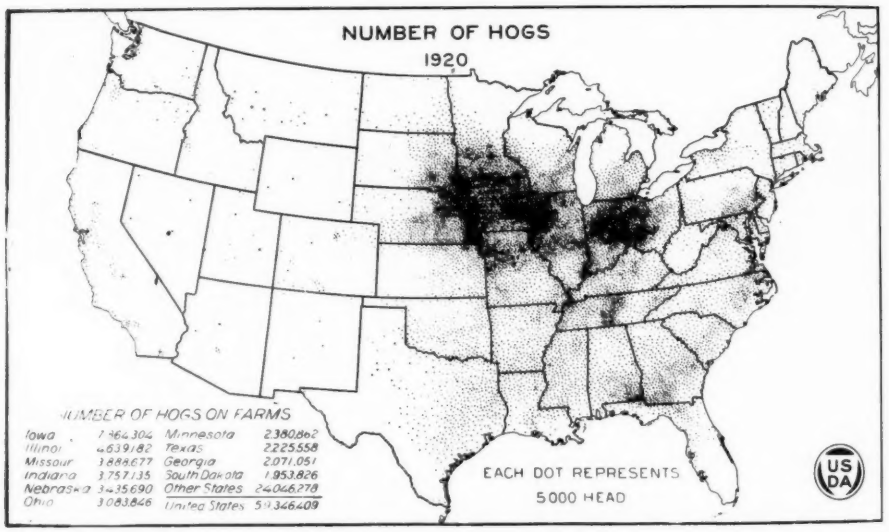
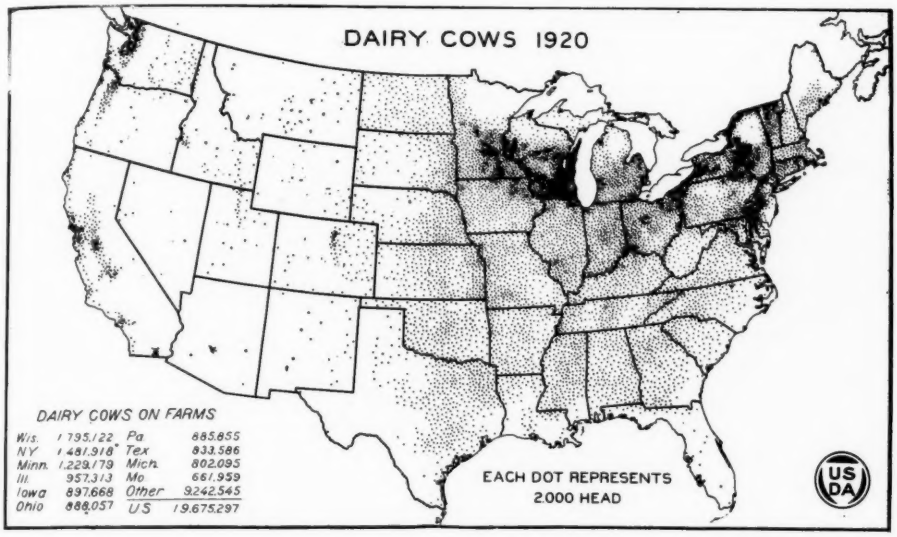
HAY AND FORAGE, ACREAGE AND PRODUCTION, 1919
HAY AND FORAGE—Continued
OUTLINE MAP OF THE UNITED STATES

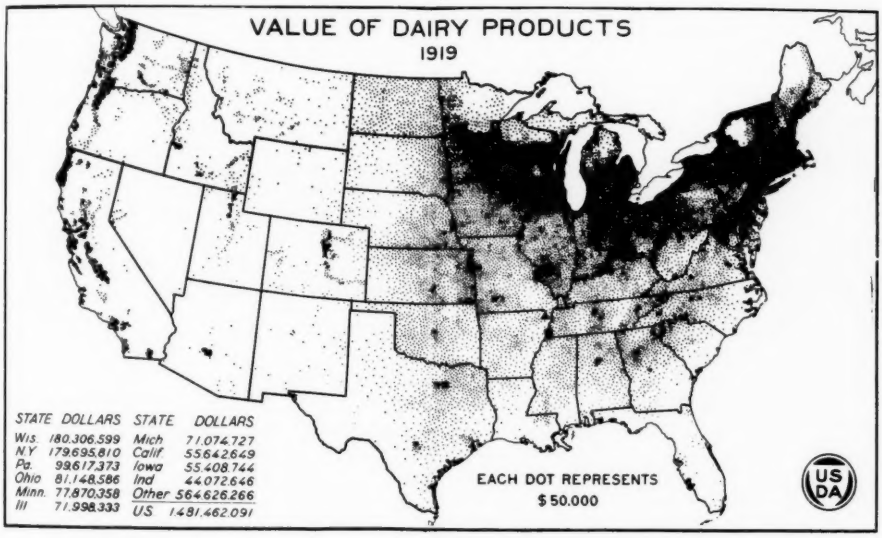


Cattle raising has become important because climatic conditions are suitable fór outdoor grazing during a large part of the year, hay and forage, and feeder crops such as corn and alfalfa are abundant

for fattening cattle, and the area is located near the populous centers of the country.

The Corn Belt might be called the "Hog Belt," for the hog area is placed by the corn acreage. Corn is bulky, does not travel or pack

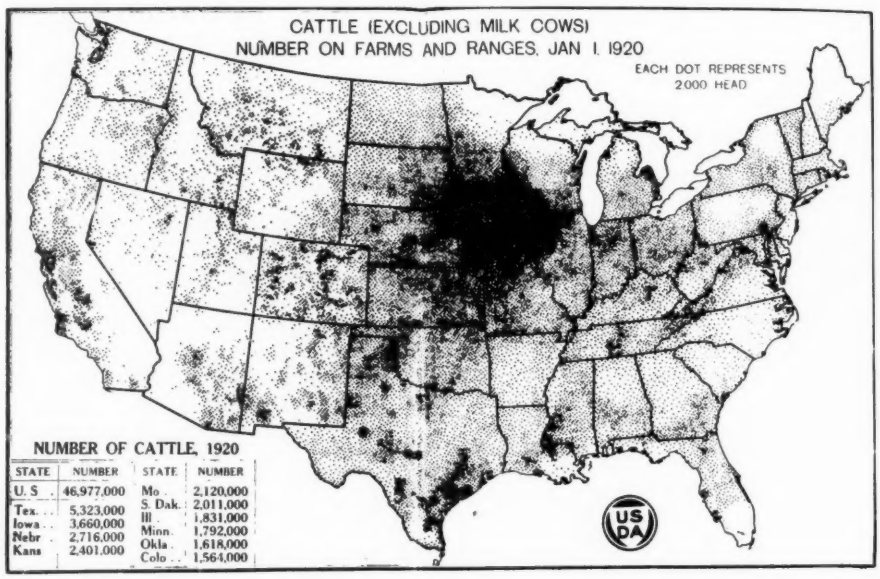




well, and this area of richest production is distant from the coast. Consequently, corn in the form of pork and pork products travels best. Lard, bacon, hams and shoulders form by far the major quantities of the pork exports. During the five years before the war

(1910-1914) 62 per cent of the pork products imported into northwest Europe (United Kingdom, Germany, France, Netherlands and Belgium) came from the United States, and for the years 1920-1922 the average has been 67 per cent.

Nearly three-fourths of the wheat exports from the United States come from the wheat acreage in this section. More than half the wheat is produced in the western part, in the Dakotas, Kansas and Nebraska. There the land is level and large scale machine production advanta-



NUMBER OF CATTLE, 1920

STATE	NUMBER	STATE	NUMBER
U. S	46,977,000	Mo.	2,120,000
Tex.	5,323,000	S. Dak.	2,011,000
Iowa	3,660,000	Ill.	1,831,000
Nebr	2,716,000	Minn.	1,792,000
Kans	2,401,000	Okla.	1,618,000
		Colo.	1,564,000

geous, and wheat climatically the most profitable crop since it can be grown without irrigation with as little as 9 inches of precipitation.[4] The great acreage with these conditions has made large crops possible.

Importance in the Foreign Trade of the United States in Agricultural Products

This region, because of its productivity, occupies an important position in the export trade of the United States in agricultural as well as total domestic products. About one-half of the value of domestic exports for the last 15 years has been made up of agricultural products and it has been estimated that the commodities from this section comprise 40 per cent of the total of agricultural exports. The only crop exceeding those from this section in importance as to production and export is cotton.

[4] V. C. Finch, and O. E. Baker, Geography of World's Agriculture, U. S. Department of Agriculture, 1917, 13

MANUFACTURES

Somewhat less than half the value of manufactures for the United States (Table II), three of the five cities whose manufactured products are worth more than a billion dollars (Table III), and eight of the thirteen states having more than a billion dollars for value of man-

TABLE II

Population[1] and Manufactures[2] in the Northern Interior for the Six Leading Industries In the United States

Values are in millions

	Population Millions	Percent Urban	Slaughtering & Meat Packing	Steel	Foundry & Machine Shop	Automobiles Bodies & Parts	Blast Furnaces	Flour & Grist Mills	All Industries
Ohio	5,759	64	170	626	348	379	179	89	5,100
Indiana	2,930	51	134	199	85	179	....	75	1,899
Illinois	6,485	68	1,284	173	235	105	65	117	5,425
West Virginia	1,464	25	19	85	15	.....	....	13	472
Kentucky	2,417	26	13	18	12	.....	....	46	396
Michigan	3,668	61	60	8	169	1,620	14	44	3,466
Wisconsin	2,632	47	102	28	87	119	....	58	1,847
Missouri	3,404	47	247	13	49	71	....	113	1,594
Iowa	2,404	36	226	.....	19	2	....	21	745
Minnesota	2,387	44	146	.....	32	2	....	381	1,218
Kansas	1,769	35	428	.....	15	.....	....	207	914
Nebraska	1,296	31	304	.....	5	2	....	9	596
South Dakota	637	16	.....	.....	.....	.....	....	29	62
North Dakota	647	14	.....	.....	.....	.....	....	69	57
Pennsylvania[3]	8,720	64	123	1,296	366	115	311	.....	7,316
East North Central	21,476	61	1,750	1,034	924	2,402	258	396	17,737
West North Central	12,544	38	1,351	13	120	77	....	829	5,187
Total Northern Interior	40,806	52	3,174	1,798	1,245	2,517	414	1,271	31,107
Total United States	105,711	51	4,246	2,829	2,289	3,080	794	2,052	62,418
% in Northern Interior	38.6	..	74.8	63.6	54.4	82.9	52.1	61.9	49.8

[1] U. S. Census 1920, Vol. I, Population 20, 150-177

[2] U. S. Census 1920, Vol. VIII, Manufactures, Tables 48, 49

[3] An estimate based on the 1920 Census indicates that more than one-third of the value of manufactured products for Pennsylvania is produced in the western part of the state. However, more than one-half of the value of steel products, about one-third of the slaughtering and meat packing, and less than one-third of Automobile Bodies, Flour and Grist Mills may be estimated to come from the western part of the state, so these several proportions of the figures as stated in the table have been included in the total for the Northern Interior. These rather unsatisfactory estimates were made since specific figures are not available.

ufactured products (Table II[5]) are in the Northern Interior. One-third of the people of the country live there (Table II). The three factors which have united to give this inland region such pre-eminence in the manufacturing industry, and so large a proportion, according to area, of the people of the country are, natural resources, local and other domestic markets, and accessibility to foreign demand.

TABLE III

*Thirty Chief Manufacturing Cities in the Northern Interior**

	Rank	Value of Products Millions		Rank	Value of Products Millions
Chicago, Ill.	2	3,657	Youngstown, Ohio	29	241
Detroit, Mich.	4	1,235	Louisville, Ky.	37	205
Cleveland, Ohio	5	1,092	Kansas City, Mo.	40	193
St. Louis, Mo.	6	872	Columbus, Ohio	41	184
Buffalo, N. Y.	8	631	Dayton, Ohio	44	175
Pittsburgh, Pa.	10	615	St. Paul, Minn.	49	145
Milwaukee, Wis.	12	576	Sioux City, Ia.	50	146
Akron, Ohio	13	559	Canton, Ohio	64	124
Cincinnati, Ohio	14	500	Racine, Wis.	67	120
Minneapolis, Minn.	15	491	Lorain, Ohio	72	117
Kansas City, Kan.	16	467	Grand Rapids, Mich.	74	109
Omaha, Nebr.	17	452	McKeesport, Pa.	76	105
Indianapolis, Ind.	20	399	Pontiac, Mich.	77	105
Toledo, Ohio	23	294	Lansing, Mich.	78	105
Flint, Mich.	25	276	Kenosha, Wis.	79	104

Total for cities listed	14,297
Total for 81 cities	45,292
Total for the United States	62,418

*Compiled from list of eighty-one cities given in U. S. Census 1920

A further scrutiny of the statistics shows that more than three-fourths of the manufactures in the region are east of the Mississippi. This area produces three-fourths of the coal of the United States, while more than four-fifths of the iron ore of the country comes from the Lake Superior region (Table IV), most of it going down the lakes to the southern shore of Lake Erie. Possession of these two resources, coal and iron, connected by the deep waterway is the chief resource basis for the large manufacturing development of the Northern Interior. The coal is a high grade coking coal, and Mesabi ore, except for the

[5] Abstracts of the Census of Manufactures for 1920, 280. The other six, excepting California, are in the east.

Brazilian deposit in Minas Geraes, is the richest known iron ore deposit. It averages almost 60 per cent metallic iron, is friable, close to the surface and can be dug by steam shovels, handled in bulk and loaded onto ore carriers in the same manner, a 12,000 ton vessel being loaded in one hour and a quarter.[6] Electrically operated clamshells holding

TABLE IV

Mineral Resources of the Northern Interior[1]

	Bituminous Coal 1922 Short Tons Millions	Iron Ore 1922 Long Tons 1000's	Coke 1921 Short Tons 1000's	Copper Smelter Output 1922 1000 lbs.	Petroleum 1922 Million bbls.	Natural Gas 1921 1000 Cubic Feet	Clay Products 1921		Salt 1922 Short Tons 1000's
							Brick & Tile 1000's	Pottery 1000's	
Ohio	27	.....	3,028	.....	7	47,412	34,165	33,232	1,106
Indiana	17	.....	3,091	.....	1	1,066	8,265	2,934	.....
Illinois	59	.....	1,322	.....	9	2,646	16,994	2,047	.....
West Virginia	81	.....	398	.....	7	174,921	2,705	11,031	25
Kentucky	40	.....	285	.....	9	4,820	4,132	191	.....
Michigan	1	12,458	777	116,284	....	.....	2,916	1,782	2,005
Wisconsin	....	795	.....	.....	....	.....	766	.....	.....
Missouri	3	58	.....	1,070	....	.....	10,579	90	.....
Iowa	5	.....	.....	.....	....	.....	5,712	.....	.....
Minnesota	....	30,209	436	.....	....	.....	2,482	.....	.....
Kansas	3	.....	.....	.....	32	15,717	3,740	.....	759
Nebraska	....	.....	.....	.....	....	.....	779	.....	.....
South Dakota	....	.....	.....	.....	....	10	.....	.....	.....
North Dakota	....	.....	.....	.....	....	1	161	.....	.....
Pennsylvania[2]	105	783	9,769	889	7	86,144	26,615	5,549	.....
Total Northern Interior	341	44,303	19,106	118,243	72	332,737	176,867	56,856	3,895
Total United States	408	50,613	25,288	994,025	551	662,052	186,295	84,103	6,793
% in Northern Interior	83.6	87.5	75.6	11.9	13.1	50.3	94.9	67.6	57.3

[1] Mineral Resources of the United States, 1922 (Preliminary Summary) U. S. G. S. 1923

[2] A larger part of these resources are in the Pittsburgh and adjacent region, but it is impossible to give exact figures.

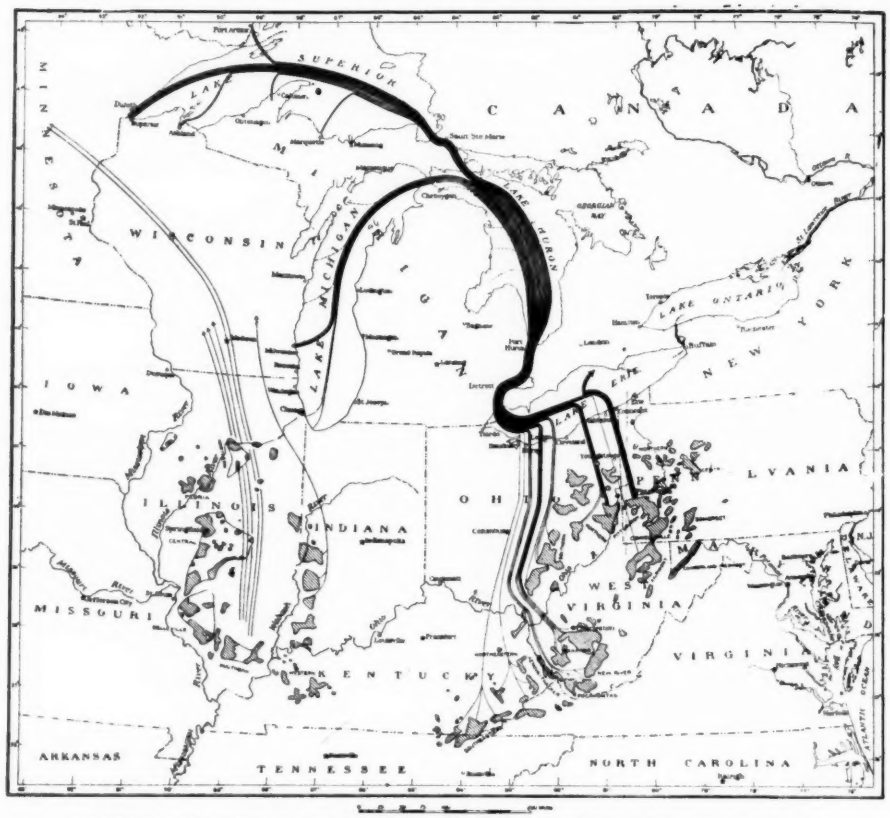
fifteen to nineteen tons each, mounted on traveling cranes, will unload the same boat in two hours and three quarters.[7]

The Pittsburgh coal seam is a high grade coking coal. Because coal is bulkier than iron ore, and because more coal than iron ore is required thru all the stages of manufacturing iron into finished steel products, factories are located near coal. This has developed the factory area from Cleveland to Pittsburgh, where factory towns are

[6] *Marine Review*, 1920, L, 96

[7] Personal Communication. Lake Carriers Association

relatively close together. Another somewhat distinct belt of manufacturing towns extends across northern Ohio, Indiana, and southern Michigan to Chicago. Coal can be shipped easily to this district. In all probability the east-west railroads paralleling Lake Erie, and rounding the southern shore of Lake Michigan at Chicago, by providing a maximum of transportation advantages have stimulated



MAP SHOWING ORIGIN AND DESTINATION OF BITUMINOUS COAL SHIPPED ON THE GREAT LAKES AND THE ALL-RAIL MOVEMENT OF BITUMINOUS COAL TO THE NORTHWEST FROM FIELDS IN ILLINOIS AND INDIANA IN 1918
Each line represents approximately 1,000,000 net tons. Ruled areas are producing coal fields

factory location there. Well paved roads extending east and west across this same belt are used to a considerable extent by heavy motor truck traffic carrying farm and manufactured products. Much coal moves thru from Lake Erie to Lake Michigan by rail and lake. Illinois coal also is used to a considerable extent in the Chicago area.

The high degree of development in the Northern Interior and the demand for construction material farther west have provided a market for structural steel. The car shops, automobile plants, and various other industries create a large demand for machine tools, thus, the importance of foundry and machine shops. These are located near

to the steel mills. For the automobile business there is a similar advantage as to raw materials and local markets. The effective demand within the region is due both to the agricultural wealth and to the prosperity of the urban areas.

Chicago is at the point where the southern shore of the Great Lakes extends farthest south and into the Corn Belt, and is at the edge of the Corn and Hog Belt as well as the area in which cattle are fattened (see map). It is the chief railroad center of the United States. These conditions have favored slaughtering and meat-packing.

The flour milling industry at Minneapolis has evolved because St. Anthony Falls on the Mississippi River furnished power, and the location is at the eastern margin of the Spring Wheat Belt, where grain for milling can be assembled advantageously.

Several factors have contributed to making Chicago the chief railroad center of the country. All the railroads from the northwest must swing around the southern end of Lake Michigan in order to reach the lowland route extending to the southern shore of Lake Erie and thru the Mohawk and Hudson Valleys to New York and the North Atlantic Trade Route. Also this part of Lake Michigan is the farthest lake re-entrant into the Corn Belt, so railroads come to the lake to connect with lake traffic.

St. Louis has developed important manufacturing activities due to its position at the entrance to the Missouri Valley, and on the transportation route paralleling the southern edge of the Northern Interior, which approximately follows the Ohio and Missouri Valleys. Also, it is toward the southwestern margin of the corn area, thus forming a receiving and distributing point for two different localities: the semi-arid grazing and dry-farming plains to the west, and the rather intensively cultivated humid lands to the east. Slaughtering and meat packing, and manufacture of boots and shoes are its chief industries.[8] The route along the southern edge of the region leads thru Pittsburgh over the Pennsylvania mountains to Philadelphia, and there connects with the North Atlantic Route, or thru Wheeling and Wills Creek Gap to the Potomac and thence to Baltimore or Philadelphia. Yet a third way extends across the West Virginia mountains via Cumberland, Maryland, to the Potomac valley and on to Philadelphia.

Thus, the inherent resources and locational relations are the basis for the three-fold economic development of the Northern Interior in agriculture, manufacturing, and commerce.

[8] U. S. Census, 1920, Vol. IX, Manufactures, 798-799

GEOGRAPHIC PRINCIPLES AND THEIR APPLICATION TO THE TEACHING OF GEOGRAPHY

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Clark University
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Geographic Principles Defined

Geography occupies a middle ground between the natural sciences and the social sciences. It finds its facts of physical environment in the realm of the natural sciences, and its facts of human activities in the social sciences. The contribution of geography lies in its interpretation of the relationships existing between these two groups of scientific facts. Geography thus becomes the interpreter to man of the relationships existing between human activities and the physical environment in which man lives. In a broader sense, geography interprets also the relationships existing between the physical environment and the behavior of all living things—plants, animals, and men. This view of geography includes plant geography, animal geography, and human geography. Since school courses are concerned almost wholly with the study of human geography, the term geography, as used in this article, applies only to this phase of the subject.

In accordance with this point of view, a geographic principle may be defined as: "A fundamental truth concerning the relationships existing between man's activities and his physical environment." While geographic *factors* are elements of the physical environment which influence the activities of man, and are, therefore, specific things which are discernible to the physical senses, geographic *principles* are general laws, which must be seen in wide operation in order to be appreciated. The geographic principle is a mental concept, a generalization. Yet it is only by the statement of these principles that the influence of geographic factors may be classified and presented as a well organized study.

A Geographic Principle Illustrated

The presence of the Strait of Gibraltar has always been an important, ever-operative geographic factor in the lives of the people of the Mediterranean Region. Its width, and its relatively slight depth, as compared with the deeper Atlantic and Mediterranean, are geographic factors of importance. The flow of the surface waters thru the strait,

the direction and the strength of prevailing winds at different seasons, and the action of the tides are also effective geographic factors. Each of these items is an element of the physical environment at the Strait of Gibraltar. The Strait of Gibraltar may be studied at some length without reference to any geographic principle. As long as the study of straits is limited to a consideration of the Strait of Gibraltar alone, or to a consideration of the specific characteristics of other straits, it is dealing with geographic factors.

This study of the Strait of Gibraltar may be followed by a similar study of the Bosphorus, Sea of Marmora, and the Dardanelles, connecting the Black Sea with the Aegean, and separating Europe from Asia; the Strait of Bab-el-Mandeb, connecting the Red Sea with the Gulf of Aden and separating Asia from Africa; the Straits of Malacca connecting the Bay of Bengal with the South China Sea and separating the Malay Peninsula from the Island of Sumatra; the Korea Strait connecting the Yellow Sea and the East China Sea with the Japan Sea, and separating Japan from Chosen; the strait of Dover connecting the North Sea with the English Channel, and separating England from France. As the student proceeds in the systematic study of these straits as geographic factors, certain influences of these narrow bodies of water become evident in the activities of the people of today, and of the past. Some of these influences become outstanding features of the study, such for example as the tendency for these straits to become battle grounds in time of war. When the investigation enables the student to perceive and to state a fundamental truth concerning the relationships existing between man's activities and these straits as a part of man's physical environment, he has discovered and expressed a geographic principle. Such a study might lead to the following general statement:

A strait tends to become a strategic point in a sea route, and a break in a land route.

A careful study of the six straits named shows that each is at present of high strategic value and that this has been true thruout long periods of history. It will be seen, also, that there is a wide difference among these straits in their relative strategic values. A variation will be found in their relative importance as breaks in land routes. In the foregoing statement of a geographic principle due consideration should be given to the word *tends.* The influence of the geographic factor may be only a tendency, not an effective control. The tendency of the influence may be strong or weak, or of no especial force. A consideration of the *tendency* in the operation of geographic factors on

the activities of man constitutes one of the effective educational values to be obtained from the study of geographic principles.

Geographic Principles Utilized

Geographic principles must be developed concretely in an elementary course in geography. The statement of the principle must follow the study of the factors. Nevertheless, after a certain number of geographic facts have been taught, the statement of the fundamental principles, together with as many illustrations as possible, organizes and relates a great many facts which otherwise would be isolated, and would carry with them no very important meanings. It is suggested that a notebook might well be kept by the students of almost any grade, in which certain fundamental principles are entered as soon as the class has acquired sufficient facts to derive them. Then, under each principle, the student continues thruout the course to list the illustrations which are met. Thus, isolated facts in the study of South America or Australia, can be related with previously studied facts in North America or Europe. Historical events of similar nature in far distant parts of the world can be shown to be geographically related. A course in geography can provide a sound basis for thought on the present-day world problems.

In a summer school course on the Principles of Geography at Clark University, the following principles were derived after the geographic factors in several actual problems had been studied. Many other principles covering other fields of geography could be stated, and should be used in a school course. These principles, however, are listed below, together with a few striking illustrations of each, to give an example of how such a notebook as was suggested could be utilized.

Principles Relating to Distribution of Population and to Land Utilization

1. The maximum potential density of population in any region is determined by the ability of the people to provide themselves with an adequate food supply.

2. In primitive times, the population is dependent on the local means of subsistence, but as commerce and transportation develop, food may be brought in from greater distances, and the density of population does not necessarily bear a direct relationship to the local means of subsistence. (Illustrations: Eskimos; England of today)

3. Rich natural resources tend to cause the overpopulation of a region with respect to the local means of subsistence, and thus to

create an insistent demand for transportation. (Mining camps in high mountains; Iquique, Chile)

4. In the Temperate and Polar Zones, population tends to concentrate in the lowlands; in the Tropics, the white population tends to concentrate in the uplands. (The Far North; Europe; Northern South America)

5. Population centers based on the exploitation of a natural resource are temporary, and may be largely abandoned when the resource is exhausted. (Western mining towns; Cut-over forest lands of Michigan; Iquique)

6. As population increases, a more efficient use of the land is necessary in order to maintain a given standard of living. (New England thruout history; Argentine Pampa)

7. When two groups, one using the land more efficiently than the other, are in competition for a given region, the group using the land more efficiently tends to prevail over the other. (English and French in North America; Germans and Russians along the old border of 1914)

8. A plain of low relief in the Temperate Zone, with a rainfall between 20 and 50 inches, with easy access to the sea, and with ready supplies of coal and iron, is the optimum geographic setting for a high industrial development. (The Ruhr; Central England; Southern Shore of Lake Erie)

PRINCIPLES RELATING TO COMMERCE AND TRANSPORTATION

9. Commerce between two regions is in large part determined by the following factors: (1) racial character of the two groups; (2) contrast of products; (3) stage of economic development; (4) ease of communication; (5) government; (6) similarity of language and tradition.

10. Commerce is most highly developed between regions: (1) inhabited by peoples of high mental capacities, and with as much energy as is consistent with the climate; (United States and England) (2) of contrasted products; (United States and Cuba) (3) in advanced stages of economic development; (United States and Cuba) (4) which are easily accessible to each other by cheap transportation; (United States and Cuba) (5) which are under the same government, especially if that government is stable, wise, honest, and progressive; (Holland and Java, United States and Hawaii) (6) in which the same language and traditions prevail. (United States and Canada)

11. Contrast of products may be due to differences of climate or natural resources, or to differences in the stage of economic develop-

ment. (United States and Cuba; United States and Chile; Germany and Russia)

12. The economic value of a system of transportation is determined by the interplay of feasibility (i.e., construction, maintenance, and operating costs) and demand; the more difficult the construction and maintenance, the greater must be the demand to justify transportation development. (Sao-Paulo Santos Railroad in Brazil; Union Pacific Railroad; Dover-Calais Tunnel)

13. Transportation is most highly developed in an industrial region, highly developed in an agricultural region, less highly developed in a region of pastoral pursuits, and only poorly developed in a region of hunting and fishing. (Ruhr; Argentine Pampa; Interior Plains of United States; Amazon)

Principles of City Location

14. Population and wealth tend to concentrate at breaks in transportation. (New York; Denver; St. Paul)

15. The location of manufacturing cities depends on cheap power; accessible raw materials; labor supply; available capital; and easy access to a market. (Gary; Cleveland; Essen; Worcester)

16. Cities based on the exploitation of natural resources tend to grow up close to those resources, and at points near the available outlets to markets. (Duluth; Iquique)

17. Governmental cities tend to be located in easily accessible positions, as near as possible to the center of population in a country at the time when the city is founded. (Washington; Moscow; Paris; Rome)

18. Recreational cities tend to grow up where climate, or water resources, or scenery contribute to man's health and pleasure. (Atlantic City; Saratoga Springs; Karlsbad)

19. Ports are located as far inland as ocean shipping can reach with ease. (Rotterdam; London; Hamburg; Philadelphia)

20. Ports on tideless seas tend to develop on the coast near the river mouths, because the latter become clogged with silt. (Marseilles; Alexandria; Odessa; Danzig)

21. Access to the hinterland is of greater importance than the presence of a natural harbor in determining the location and growth of a port. (Rio de Janeiro and Buenos Aires; Boston and New York; Los Angeles and San Francisco)

The development of geographic principles from a definite study of concrete examples; the statement of these principles in language

appropriate to the ability of the students; and the frequent application of these principles as organizing centers for newly acquired geographical information will serve to relate new knowledge to earlier studies in an effective manner.

FIELD TRIPS TO SUPPLEMENT THE COURSE OF STUDY*

Hazel Deane Shields

High School, Portland, Maine

In the Portland High School, geography is taught under the following conditions. The work is offered to second year students under the caption "Geography." It is required in the Commercial course but is elective in the Practical Arts, Vocational, Scientific and General courses. Classes meet five times a week, for forty minute periods for an entire year, with two points available for the year's work. The course is organized under the following chief headings.

1. Physiography: a study of physical regions
2. Primary Production: production of raw materials
3. Primary Transportation: elemental methods necessary for transfer of products of field of primary production
4. Secondary Production: manufacturing, commerce and industry
5. Secondary Transportation: modern complex methods of distributing products of field of secondary production
6. Distribution and consumption: survey of world relations, commercially and economically

Without any attempt to go into detail here on this course of study, there follows in outline form, what may be called an available or ideal list of field trips to supplement the course, usually, but better still when possible, to serve as the chief textbook.

A. Physiographic regions
   1. Coast of Maine
      a Class room study of topographic maps of Portland and Casco Bay, followed by trip to Cape Elizabeth—view of inner harbor
      b. Two lights—view of outer harbor
      c Eastern Promenade—survey of entire harbor

*This outline is presented as a suggestion to teachers in other secondary schools. Editor.

2. Rivers and mountains
   a. Western Promenade: Stroudwater River and view of White Mountains (60 miles distant on clear day)
   b. Songo River—via Casco Bay. All day trip, impossible to make a requirement, but especially desirable for all who can go—special boat chartered

B. Primary production
   1. Fishing—Rockland, State Fish Hatchery
   2. Agriculture and Forestry—study would depend upon notes taken on any of the previous trips, especially Songo River
   3. Mining
      a. Stone cutting—islands of Casco Bay (very nearly obsolete)
      b. Tourmalines—Paris and Gray

C. Primary transportation: only personal observations will be from possible experiences of any members of class in traveling, and local observation of human porter system and methods of transfer of products of primary production

D. Secondary production
   1. Location of Industries (in general)
      a. Personal and individual visits to manufacturing and industrial section of city to determine from observation and personal inquiry reasons for location of industries
      b. Chart—"Factors Governing Location of Industries," being a general survey of all factors governing industrial and commercial location, from the standpoint of the geographer, under the following general outline:

A. Geographic
   1. Position
   2. Size
   3. Topography
   4. Temperature
   5. Rainfall
   6. Soil
   7. Drainage
   8. Vegetable life
   9. Animal life
   10. Prevalent occupations
   11. Population

B. Economic
   1. Demand
   2. Supply
   3. Capital
   4. Combinations
   5. Labor
   6. Competition
   7. Profit
   8. Transportation

C. Political
   1. Type of government
   2. Strength of government
   3. War
   4. Corruption of government
   5. Tariff
   6. Bounties and subsidies
   7. Franchise
   8. Restrictions
   9. Business laws
   10. Monetary standard

D. Educational
   1. Government schools
   2. Technical schools (colleges and universities)

3. Public technical schools
4. Public schools (general)
5. Rural schools

E. Scientific
1. Inventions
2. Discoveries
3. Systemization
4. Hybridization
5. Improvements

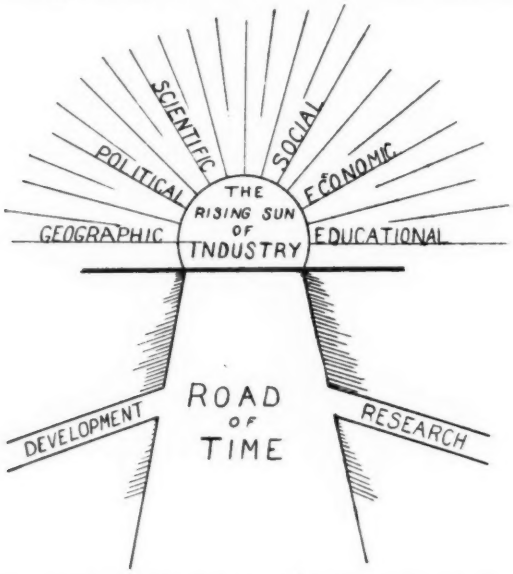
F. Social
1. Stage of civilization
2. Religion
3. Temperament
4. Style

2. Special industries to be visited
   a. Meat packing—Swift & Co.
   b. Canned food products—Burnham & Morrill and Twitchell & Champlin
   c. Tin—American Can Co.
   d. Clay pipes for drainage systems—Winslow Co.
   e. Paper—D. S. Warren Paper Co.
   f. Screens—E. T. Burrows Co.
   g. Toilet preparations—A. S. Hinds Co.
   h. Cotton Manufacturing—white goods, Peperell Manufacturing Co., and dyed goods, York Manufacturing Co.
   i. Cotton machinery—Saco-Lowell Cotton Machinery Co.
   j. Hotel business—Congress Square Hotel, Lafayette Hotel, Falmouth Hotel
3. Chart in detail on one or more special industries visited, based on following outline

NAME OF INDUSTRY

Geographic background and source of raw materials	*Raw materials* *Primary*: those essential for manufacturing the commodity and found in some state in the finished product *Secondary*: those essential for manufacturing the commodity and not found in any state in the finished product *Tertiary*: those essential for any industry	Processes of manufacture	Distribution and Consumption	Special Statistics

E. Secondary transportation
   1. Tour of Commercial Street, noting;
      a. Waterfront, wharfage and shipping
      b. Freight shipment by spur tracking from freight yards to wharves
      c. Electric car line and electric freight
      d. Trucking: local, interurban and interstate routes



TRANSPORTATION (Underlying whole)

This is a type illustration originated by pupils. It must have certain requisites of representing commerce or industry as a whole, or some phase thereof, and the relation of the six main factors governing industrial location.

   2. Masted schooner
   3. Maine State Pier
   4. Cunard Line ships: noting transfer of shipping terminus from Montreal to Portland, December to April, due to freezing of St. Lawrence River

F. Distribution and consumption
   1. Freight yard
      a. Freight cars: source, destination, and handling in yards
      b. Freight: character of packages, source and destination
      c. Connections
         (1) With city and industries and commercial houses
         (2) With railroad lines and outside world
   2. World relationships

Detailed Development of Commercial Street Trip

Secondary Transportation

A. Start at Grand Trunk Railroad Terminus
   1. Note location in relation to railroad
   2. Location in relation to waterfront
   3. Lines of approach by railroad
   4. Connection with waterfront
   5. Wharfage and warehouses
      a. Frontage of wharves
      b. Capacity at any one time
      c. Capacity of warehouses
      d. Use of warehouses

B. Cunard Line
   1. Passenger and freight service
   2. When most used
   3. Why?

C. State Pier
   1. Shape of pier and reason
   2. Frontage and capacity
   3. Use
   4. Ships tied up at time of visit
      a. Bound for what port
      b. Cargo
      c. Length of trip
      d. Relation to transfer of shipping from Montreal

D. New York and Boston Lines
   1. Passenger service
   2. Seasons of greatest use
   3. Note character of ships tied up at time of visit

E. Coal pockets
   1. Railroad connection
   2. Nature of ships
   3. Tie-up for tugs—reason

F. Casco Bay Line
   1. Connections
   2. Ferry

G. Electric freight and electric car lines
   1. Reasons for use of electric freight
   2. Location of electric freight house on side street and reason
   3 Character of street to allow various lines

H. Grouping of wharves on waterfront with reference to character of business
I. Note relative location of;
   1. Fishing wharves
   2. Docking of imported products
   3. Meat packing companies
   4. Twitchell & Champlin
   5. Ice and refr gerating companies
   6. Wheat
   7. Coal
J. Connections with;
   1. Boston and Maine
   2. Maine Central
   3. Grand Trunk
K. New Portland bridge
   1. Cost
   2. Time of construction
   3. By whom financed
   4. Nature of construction and reason
   5. Traffic
L. Gas company
   1. Reason for location
   2. Connections
M. Petroleum companies
   1. Reason for location
   2. Connections
   3. Storage system
   4. Extension of water frontage

DETAILED DEVELOPMENT OF "COAST OF MAINE" TRIP

A. Study topographic maps of Portland harbor and Casco Bay
B. Eastern Promenade trip
   1. Face directly east with topographic maps oriented on ground
   2. Note railroad approach of Grand Trunk and wharf connections
   3. Location of wharfage space
   4. Positions of islands
      a. Little Diamond, Great Diamond, Peak's, Long, Little Chebeague, Great Chebeague, Bailey, Orr's, Cousin's and Littlejohn, Harpswell
      b. One time part of mainland
      c. Drowned coast line

d. Character of drowned coastline
e. Advantages and disadvantages

5. Position of lights and buoys—United States Coastal Survey Lighthouse Station at Little Diamond
6. Channel
   a. Ocean shipping
   b. Coastwise shipping
   c. One channel and branching for ocean and coastwise shipping, east and west
7. Channel and course for Casco Bay shipping
8. Mainland to Freeport
9. Back Bay
10. South Portland

This paper is not intended to present in any respect an arbitrary outline to be used in any and all coast city schools. It is intended to be suggestive for an organization of a list of field trips in various localities and regions over the country. Such an organization of field trips would differ in type just in so far as the type of community and its life differed.

THE PLACE OF DETAIL IN GEOGRAPHY TEACHING[1]

LEONARD O. PACKARD
Boston Normal School

THE IMPORTANCE OF INTERESTING DETAIL

The longer I teach geography the more I find myself giving time and attention to the use of interesting detail. In seeking a reason for this tendency I find it due to my close relations with the work of the model school. When one of my pupils is obliged to prepare a lesson for the grades she has little difficulty in securing the necessary geographic facts, for the department library readily meets her needs in this particular. But to find this material in form adapted to children in the grades is a difficult matter. Because I have been obliged to face this situation again and again I have felt it my duty to supply my pupils who are prospective teachers with materials very much needed in their work and which the texts and even the readers supply in insufficient quantity.

I wish to use as an introduction to my paper a brief quotation from an article written by Prof. Ernest C. Moore.[2]

[1] An abridgment of a paper presented at the Cincinnati meeting of the National Council of Geography Teachers, December 27, 1923.

[2] *Educational Review*, October, 1916

The mistaken notion that education is the imparting of knowledge, the delivering or conferring or handing out of knowledge with all the confusion and waste that follows from it in schools is due to certain foolish statements which we allow ourselves to make concerning language. We say that language imparts thought, or vehicles thought or expresses thought, or conveys thought. It does nothing of the sort. Thoughts cannot be sent from one person to another. They never pass thru the air. They do not ride on words or leave us when we move our lips and disturb the air about us in such a way that that disturbance reaches the tympanum of an auditor. If I speak to you you feel a sound but you make your own meaning to fit that sound. If the sound is of a language strange to you you say that you cannot make out what I mean. Language is only a system of signals. When I can make them out I can understand what you mean but the thought which I make to fit your sounds, your words is my own thought not yours. In place of saying that language imparts thought or conveys thought we should say that language demands thought or requires thought, or arouses thought, or necessitates thought or provokes it.

The teacher then and the text do not purvey or supply thought but rather provoke it. The thought and knowledge which the student makes are his own.

Accepting Professor Moore's conclusion it is easy to see that the number of thoughts aroused in the pupil's minds as well as the scope of those thoughts depends in large measure upon the extent to which the teacher or the text is able to touch the pupil's past experiences upon which he must draw to make his thought and therefore his knowledge.

Even in the higher grades the experiences and the interests of the pupils are necessarily limited. The good teacher therefore constantly strives to learn what those experiences are, to adapt his teaching to them and thus to build upon them. Because we have disregarded the limited experiences of our pupils, too much of our teaching has consisted in forcing upon the pupil generalizations which his mind is unable to appreciate and therefore unable to assimilate and use.

The teacher's problem is to present to the mind of the pupil many points of interest with the hope that at least some of these will connect with the few interests growing out of the pupil's limited experiences. Obviously these many points of interest upon which the teacher must depend are details—details common to the lives of the great majority of children. Generalizations must be used sparingly and then only when the proper foundations have been laid.

Vivid Pictures Necessary in the Higher Grades

Of course we have always placed more or less emphasis on interesting detail in work with the lower grades. More recently we have realized the necessity of gaining interest in the higher grades in much the same way. The material presented by Dr. Harold Rugg and his associates in their "Social Science" pamphlets has much to suggest

to teachers in the way in which interesting detail may be effectively used. One of the principal ways in which this course differs from others is in the amount of such detail presented to the pupils. It is the purpose of the authors to present vivid pictures of present conditions in the study of geography and civics, and vivid pictures of past conditions and events in the study of history. In the study of historical events the authors aim wherever possible to place before the pupils descriptions written or spoken by eye-witnesses of that time.

Let me cite a few illustrations from one of his pamphlets entitled "The Mechanical Conquest of America". This pamphlet begins with the introduction of machinery and the important consequences which followed. Almost at the very beginning comes the story of McCormack's first attempt to use the reaper. Note the manner in which the trial is described.

> The field was hilly and the reaper worked badly. It slewed and jolted along cutting the grain very irregularly. Seeing this the owner of the field—a man who was Ruff by name and rough by nature rushed up to McCormack and shouted, "Here, this won't do. Stop your horses. Your machine is rattling the heads off my wheat." "It's a humbug," bawled out one of the laborers. "Give me the old cradle yet, boys," exclaimed a round shouldered farmer. The Negroes turned handsprings with delight and the whole jeering mob gathered round the discredited machine.
>
> Just then a fine-looking man rode up on horseback. The crowd made way for they recognized him as the Honorable William Taylor, conspicuous politician of the day. "Pull down the fence and cross over into my field," he said to young McCormack, "I'll give you a fair chance to try your machine."
>
> McCormack quickly accepted the offer, drove into Taylor's field and cut the grain successfully for four or five hours.

Such a story not only gives interest but it also presents the problems of the times, the struggles of the inventor and the significance of the results as no ordinary description can possibly do.

Two or three pages after this the authors take up the "English Industrial Revolution." Here again the introduction is a story, a selection from Charlotte Bronte's "Shirley." A mill owner is expecting teams to arrive with machinery for his mill. The teams arrived but without men or machinery. The owner finds this note tied to the harness of one of the horses:

> Your hellish machinery is shivered to smash on Stilbro' Moor and your men are lying bound hand and foot in a ditch by the roadside. Take this as a warning from men that are starving and have starving wives and children to go home to when they have done this deed. If you get new machines or if you otherwise go on as you have done you shall hear from us again. Beware!

In similar manner the story of Morse, of Bell, of Kelly, the iron worker are given. Let me repeat that such stories help the pupils to

understand by means of these pictures of the times that progress has meant struggle on the part of the inventor, and that it has meant hardship for the workers because of the many readjustments necessary. They also help him to contrast the conditions preceding the industrial revolution with those of the present time as no ordinary description could possibly do.

Geography Is the Key to Current Affairs

Another means used by Dr. Rugg is that of the newspaper headline. The purpose is similar to that of the publisher, viz., to attract attention. Another purpose is served, however—and that is to link up the topic with daily life. There is no better way to do this than by basing the study of geography, history and civics on current events.

In civics the study of labor and capital may be introduced by a newspaper article giving an account of a strike or a lockout. In geography the commercial relations between the United States and the leading countries may be approached by means of a headline concerning trade relations between Europe and America.

Current events not only supply the detail necessary to illustrate many important principles of geography but better still they enable the pupil to acquire the habit of actually applying his geograhy. The facts of geography which in most of our texts are from one to ten years old are of little value in themselves. Unless we train our pupils to take an interest in what is going on in the world and to interpret the events in the light of geographic principles, we are making but slight contribution to the pupil who is to make use of his knowledge and power five, fifteen, or twenty-five years in the future. How many of the facts of his old geography text will be valid in that time?

Here is one study of which the pupil need not say—"Of what use will that ever be to me? I shall never use it." Let's see to it that he does use it now and that he recognizes his study as current geography.

The significant fact in Dr. Ruggs' course is that he recognizes the importance—yes, the necessity, of interesting detail and of presenting the subject as related to specific human beings.

The Relative Values of How and Why

In my courses on the teaching of geography I try to show my pupils the place of detail in the lower as contrasted with the higher grades by a consideration of the relative emphasis that may be placed on the *how* and the *why* of the subject in the several grades.

In fourth grade geography we teach *how* the Eskimo dresses and *how* he gets his food; *how* the nomad of the desert travels from place to place; *how* the Indian of the Amazon Valley builds his hut and *how* he cuts his way thru the forest.

We teach the geography of the early years in this way because it is intensely interesting to small children; it is something they can understand; and at the same time it opens the way to quite as much causal relationship as these small children can grasp.

Obviously one of our aims in these lower grades is to arouse interest. At the same time much valuable geographical knowledge and many simple geographical principles may be taught thru learning *how* things are done.

In the higher grades of course we can stress more strongly the *why*. But for the introduction of the subject, for gaining interest, for the association of the subject, for gaining interest, for the association of ideas that the knowledge may function, the study of the *how* must hold an important place.

One point in this connection I wish to emphasize. Much of our of called reasoning is unprofitable because there is not a ground work so fact—a knowledge of how things are done—on which reasoning may be based. How many normal school instructors have been told by adult pupils that a certain city must have abundant waterpower because it is located on a lake or on the sea coast? Here the instructor has to put on the board a diagram of an old fashioned water wheel and briefly tell how it operates.

Much of our difficulty in teaching all the great occupations is due to the fact that our pupils are not familiar with the processes. When I talk to my city normal school pupils about plowing, harrowing, harvesting, etc., I get very little response because of their lack of knowledge of farming. I am especially fortunate, however, in teaching the textile industry in that every year or two about a half mile from my building there is held an exhibition where we see in operation all the processes of textile manufacture from the work of the old fashioned spinning wheel and hand loom to the Jacquard loom and the humidifier. After a visit to this exhibit we can discuss the textile industry more intelligently.

One of the best illustrations of the necessity of a knowledge of *how* is shown in the iron and steel industry. Is it not clear that a knowledge of *how* the ore is mined, *how* it is loaded on the ships, *how* it is unloaded from the ships and a simple knowledge of smelting and making steel are necessary foundations for an understanding of the

principles underlying the industry? Unless there is some comprehension of what farming is and of what manufacturing consists the discussion of geographical principles makes little impression and the knowledge supplied can be of little use.

Therefore if we are to provide the interesting detail that shall serve as the basis for the understanding of geographic principles it is necessary to tell stories, to take the pupils to the fair, to use the stereoptican and the moving picture machine and thus make it necessary to spend less time unprofitably in discussing why things are so.

SOCIALIZING GEOGRAPHY—A PROJECT

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METHODS OF ORGANIZATION

There are several divisions into which a class may be divided for the purpose of socializing the recitation. The class may be considered as a unit, in groups, or taken as individuals. In whatever way the class is divided, the divisions should not be regarded separately and any possiblity of the children receiving the impression that each division is distinctly a unit within itself should be avoided. Each group should realize that it is held responsible for the particular part of the lesson assigned to it. With some assignments it is often best to give different topics to each member. When lessons of these socialized forms are assigned, the pupils should be given a study period at which time the groups should meet and organize their subject matter under the supervision of the teacher.

In view of these methods of socializing the recitation, I organized my seventh grade geography classes into a Geographical Society. My aims were to develop the individuality of the pupils, to acquaint the children with the principles of parliamentary usage, and to create a greater interest in this most hated science.

The seventh grade being departmental was divided into three sections. It was decided that each section should have its own cabinet consisting of a President, Vice-President, Secretary, Treasurer, and Sergeant-at-Arms. Several ways of choosing the Cabinet were suggested by the children. One pupil advocated that the teacher should appoint them; another thought that the officers should be chosen according to the results of a geography test; another pupil suggested that the cabinets should be elected by the vote of the

classes. After the pupils had thoroly discussed the advantages and disadvantages of each plan, it was finally decided to use the latter method.

The children became very much interested; they called into use their knowledge of political campaigns and decided to conduct their elections similarly. Two political factions were set up each with its own nominees and platform and then the campaign began. Speeches were made boosting the candidates; placards were posted with such sayings as the following: "Vote for Alfred Wood. He knows more than our authors." "Vote the World Ticket." "Vote the ticket that stands for the development of uncivilized nations." Other posters were displayed with cartoons and pictures of eminent men who have made contributions to geography and civilization. Stanley, Livingstone, Roosevelt, and their exploits featured in the campaign; their achievements were mentioned as principles for which the parties stood.

After a campaign of three days, election took place. The form of voting was similar to the casting of an official ballot. The results of the election were announced and received very harmoniously particularly in one section where the ticket was split.

A joint meeting of the officers of the three sections was called at which time a constitution was discussed and drafted. The secretaries read the laws before their respective societies and the pupils accepted or amended them to their liking. One amendment which particularly impressed me was that every class recitation would be regarded as a meeting of the Geographical Society. This indicated that the children were diverting from the old type of recitation and adhering to the newer and more socialized form.

STIMULATING INTEREST

The possibility of securing badges for the organization was discussed. The President appointed a committee whose duty was to write to several companies to get catalogs. When the committee reported, it was asked to locate the cities to which they wrote for information. Railroad routes were then traced from our city to these places. Questions concerning the material used in making badges arose; these led the children to a further investigation and research to find other states and countries that produced these materials. This work necessitated a Committee on Trade Routes to whom the class referred for railroad and steamship guides to assist them in the tracing of routes.

At a meeting of the Geographical Society, a member suggested a Committee on Books and a Committee on Pictures to work in cooperation with the Committee on Trade Routes. The Book Committee collected a number of books and magazines which contained information concerning the places mentioned along the trade routes. The Committee on Pictures made a collection of scenes. As a result of the pupils' interest and the work of these committees, interesting reports were prepared in connection with the regular recitation.

While the interest of the classes was gradually increasing, I decided to divert their attention to a more specific phase of geography by assigning a topic for recitation. I held a consultation with the presidents and the secretaries at which time we decided to assign the following problem: "Compare the physical features of South America with those of North America, noting effect upon civilization." The assignment was read by the secretaries who requested all members to write it in their assignment notebooks.

SOCIALIZED RECITATIONS

The results were very gratifying. The next day every pupil was prepared to contribute to the recitation. The president presided over the meeting. She first called for a report of the committees. The Chairman of the Book Committee read the names of several references compiled by his associates and as he read them, they were placed on the library table. The Chairman of the Picture Committee responded by displaying several pictures of the mountains, valleys, rivers, and plains of these continents. After the reports as many pupils as possible were called upon for their contributions. I took the last part of the hour to summarize the pupils' recitations and to make the next day's assignment. I requested the children to bring original relief maps of South America to the next meeting of the Geographical Society.

We had such an interesting lesson I was very anxious to see the nature of the relief maps the children would bring to the class. Most of them were very neatly drawn, the surface features being shown by colors and shading. A few of the boys brought artistically hand-carved maps which they made in the evening shop work classes. Other pupils purchased panes of glass on which they made maps of putty, sand, and paper pulp. This collection made a splendid exhibit and proved a source of inspiration to future work.

The next morning as a special feature of the auditorium exercises, one section of the Geographical Society presented three boys who

compared the physical features of North America and South America in a very unique way. One boy read a paper which discussed the likenesses and unlikenesses of these continents while the other two boys deftly sketched them indicating the various points contrasted. This was a very interesting and educative entertainment. The effect upon the school was remarkable. Several teachers and many pupils examined the work of these boys after it had been placed on exhibition.

APPEALING TO RIVALRY

The pupils were now ready to study the political divisions of South America. They selected the "A-B-C" countries, choosing Brazil as the first choice. It was studied in comparison with the United States with emphasis upon its contributions to the world. To emphasize the important contributions Brazil makes to civilization, I decided to give a prize essay contest. I called a meeting of the presidents and secretaries and we formulated the rules governing the contest. The secretaries read the rules to their respective societies. The pupils were given a choice of rubber or coffee as their topics on which they were to write original compositions of eight hundred words. A date was set when the essays were due, and each section selected a judge who selected the best paper from the number given her. The three best papers were read by the three judges and rated as first, second, and third. I awarded three prizes; three credits for the first, two for the second, and one for the third. All other contestants received a grade of "B" as a reward for their splendid efforts. In addition to these prizes, the school paper published the first prize essay; the other two were read before the geography classes.

As a means of comparing the governments of Brazil and United States, the pupils staged a debate on the question "*Resolved*, That the Brazilian Republic is More Democratic than the United States Government." Arguments were advanced on both sides from the executive, legislative, and judicial points of view. The hearty applause from the children, the teachers, and parents, who came to hear the contest, indicated that the work and influence of this little organization were spreading thruout the school into the community.

This event aroused within the other pupils a desire to participate in debating. I suggested to them a triangular debate between the three sections. My suggestion met a hearty approval. A joint meeting of the cabinets was held and an agreement was framed. All members of the Geographical Society were eligible to try out.

The question for the tryouts was "*Resolved*, That England is a greater commercial power than the United States." The three teams with alternates were chosen according to principles of debating applied to the childish point of view. It was agreed that section "A" would debate section "B." The team representing these sections decided upon this question as their topic "*Resolved*, That immigration into United States should be prohibited for the next five years." This was a timely question as we were studying immigration as a result of the World War. The "A" section supporting the negative side proved victorious.

The children anxiously awaited the final contest of the Triangular Debate when the undefeated team of Section "A" would meet the confident team of Section "C" for the championship. They met and chose as their subject: "*Resolved*, That United States should compel China by military force to release the American captives." This also proved to be a lively question as the diplomats of the world were discussing what action was best in regard to the prisoners held by the Chinese bandits. Interest in the contest was unlimited. The debaters searched every available source for proof. One member of the teams wrote his governor and Congressman to obtain their views to quote as authorities. International law was interpreted, statesmen were quoted, statistics and historical facts were stated in a persuasive manner. The decision was a difficult one to render. The "A" section, supporting the negative side for the second time, won the favor of the judges and were declared the champion debaters. A pennant is to be awarded them at the opening of school upon which will be written: "Seventh Grade Geographical Society, Triangular Debate, won by Section "A," 1923." This pennant will be hung on the school walls and contested for every year by the sections of the seventh grade.

PUBLIC RECOGNITION

The work of our little society extended beyond the school and community. Two communications were received from distant places inquiring about our organization. The National Geographic Society at Washington, D. C., wrote us for information concerning our work. It was sent and what dispensation was made of it we do not know. The receiving of a communication from such a distinguished body was an honor, an inspiration, and a great satisfaction to the pupils. The other communication was from the *Crisis*, a magazine published in New York. The Committee on Correspond-

ence sent the editor an article which I do not recall being published. Perhaps the childish expression of facts, which seemed to me exceptionally good, did not meet the approval of the editor.

Results

Recitations and other contests were conducted under my supervision. I have only mentioned a few of the largest undertakings by the pupils. From these mentioned, I am certain that my readers will obtain an idea as to what we endeavored to accomplish and what great advantages may be realized thru an organization of this kind.

Personally, I feel that our aims were achieved very successfully. The individuality of the children was developed by taking part in the organizing of the society, by serving on committees, and by participating in the debates and other contests. Much training in public speaking was received; an art which can not be taught too early in our schools. Besides debating questions which involved the principles of national governments, they received knowledge of same by participating in the governing of their own society. Enlivening cold facts by correlating them with the spirit of emulation between individuals and groups stimulated interest. Their desire for proof inculcated by debates taught them the use of supplementary books and other sources of research. In addition to accomplishing these aims, the pupils came in contact with some of the largest and finest organizations in our country. They learned the business courtesies of life which are so essential in the success of an individual.

In all our teaching and undertakings this question should be uppermost in our minds: What effect will this particular thing have upon the pupils? Often times the impression made upon the young brain is the lasting and the guiding factor in directing the child's interest. I was very pleased to overhear these words spoken by one of my pupils who, no doubt, expressed the opinion of others "I used to hate geography but I love it now."

A BRIEF FOR THE MOTION PICTURE IN GEOGRAPHIC STUDIES*

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The following brief is presented for the consideration of geographers interested in the advancement of geographic methods of study and instruction. These conclusions are based upon experiences of the past three years.

1. Geography is preeminently a picture study of human responses to physical features, hence, the value of the moving picture which shows life in action.
2. The motion picture reproduces geographical influences in action.
3. The activities of people from near or remote localities may be studied in an indoor field trip or in the laboratory.
4. Physical phenomena difficult to comprehend when unseen, become vivid in the motion picture: as the flood, the volcano, the flow of lava, the eclipse, wave action, wind effects, etc.
5. The study of clouds, snow, dew, fog, frost, storm, the actual phenomenon or its result may be arranged for study.
6. Seasonal changes are shown in moving continuities from the flowering spring, the hot summer, the harvest autumn to the snowy winter.
7. Map construction and use is real and vital in the animated map, i.e., in war time the motion picture taught the construction and reading of contour maps.
8. The motion picture animates the map, the sketch and the block diagram which makes clear each stage of form development.
9. In regional geography, the many human responses to physical influences can be collected for comparison.
10. A geographer may present local geographical studies in motion pictures made by himself in the field—a record more exact than words or still pictures.
11. The animals and plants of the land, the sea or sky when reproduced in natural colors with natural action in their physical environment, is a new and effective tool in modern geographical studies.
12. Animal activities are best observed, recorded and presented in motion pictures.

* Presented at the Cincinnati meeting of the National Council of Geography Teachers, December 27, 1923.

13. Mining, lumbering, farming or manufacturing are depicted in a moving continuity showing the influence of geographical control.
14. Transportation in all of its controlling phases in modern life from the fastest express to the human pack carrier, may be shown and studied in all the details.
15. The modern motion picture printed on non-inflammable film, is safe in any laboratory or schoolroom without fire booth.
16. The modern motion picture projector is inexpensive, easy to operate and pictures may be stopped for discussion when necessary.
17. The modern motion picture contains 1,000 feet of forty different scenes and titles at a cost less than five cents per foot, or less than the cost of forty lantern slides.
18. The modern motion picture is purchased outright, made available to pupils as readily as the library books.
19. To geography for investigation, for record and for instruction, the motion picture is a new tool which affords unusual advantages.
20. And finally, the motion picture, of those phases of geography which require pictured activity for clear understanding, is as essential as the map, the text, the specimen or still pictures.

GEOGRAPHICAL PUBLICATIONS

Roderick Peattie. **Geography of Ohio.** 127 pp., 28 maps, 16 photos, Index. Geological Survey of Ohio, Fourth Series, Bull. 27, Columbus. 1923.

This bulletin, prepared for use in the schools of Ohio, will be distinctly useful to teachers of geography in other states as well. It contains chapters on Surface Features and Soils; Climate; Agriculture; Mineral Resources; Transportation and the Development of Industries; and on Settlement and Development. The maps include half-page portions of six topographic maps showing representative conditions in different regions, seven maps of climatic elements, six of crops and farm animals, a geologic map, one historical map and three showing minerals. The text affords a good summary of several aspects of the geography. The bibliographies will be helpful to students who wish to go deeper into several subjects. The book is well written, the illustrations are excellent, and the paper, printing and binding altogether satisfactory. The people of Ohio have reason to be proud of this book. The teaching of geography would be improved if all the states provided such a summary of their geography.

University of Indiana S. S. VISHER

L. C. Marshall, **The Story of Human Progress.** 239 pp. The Macmillan Co., N. Y. 1923.

This preliminary paper covered edition of the Story of Human Progress contains but seven of the nineteen chapters planned for the full text when completed. According to the preface the book has been issued in this preliminary form so as to be more available

for criticism and trial. The completed volume will be accompanied by a companion volume of collateral readings.

Chapter I attempts to show graphically, and somewhat after the manner of James Harvey Robinson in his "Mind in the Making," man's place in time and the great current of life. Chapters II and III are snap shots, as the author calls them, or quite detailed descriptions of how man, the Neanderthal Man and the Iroquois, lived at two different stages of advancement; viz, the beginnings of communication and the use of tools, and when some of the benefits of tools, communication, and social organization had been attained. The remaining four chapters of the book deal with man, the harnesser of nature in which the story is told of his conquest of fire and the metals, the application of various kinds of power to machinery and the effect of all this upon our "living together well."

If history, as Fairgrieve defines it, is the story of man's increasing ability to control energy, "The Story of Human Progress" is certainly good history for man's increasing ability to control energy is the dominant theme of this preliminary edition. But if geography is the study of the influence of natural environment upon the distribution characteristics and activities of man "The Story of Human Progress" contains very little geography, for the influence of man's natural environment as conditioning and influencing his advancement is scarcely mentioned or even suggested except in the most general way.

While the preceding statement needs to be made in a review for a geographic journal it was certainly not the intention of the author to write either history or geography but as stated in the preface, a preview of social studies for the secondary schools. As such, the book is well planned and executed, the only question being whether it has been written down to the reading ability and intelligence of pupils in the grades for which it is intended. If the book should be a little difficult the way for its use may be prepared by the companion volume which is to accompany it—especially if it contains readings from such excellent stories of progress as Waterloo's "Story of Ab," "Son of the Ages" and Kummer's "First Days of Man."

State Normal School, Mt. Pleasant, Mich. R D CALKINS

Isaiah Bowman. **Supplement to the New World.** Subtitle, Problems in Political Geography. 98 pp., 18 maps and diagrams. World Book Co., Yonkers-on-Hudson, N. Y. 1923.

As indicated by the title, this publication is a supplement to Dr. Bowman's New World and will be included in the new edition of that work now in preparation. The first seventy-seven pages are devoted to the United States in which are discussed the internal situation, foreign relations in the Americas, foreign relations imposed by civilization, and American interests in the Philippines and the Pacific. The "Political Map of Turkey" (Sup. to Chap. 26) is given sixteen pages, and the additional appendix material four pages.

A. W. Abrams. **Greek and Roman Remains,** Study 50, Slides and Photographs, 161 pp. Visual Instruction Division, State Department of Education, Albany, N. Y. 1923.

Greek and Roman Remains is a descriptive list of lantern slides and photographs prepared for use in the schools of the state. The material is organized in four principal groups: maps and plans, Greek remains, Roman remains, and topical. A total of 605 slides and photographs with brief descriptions of each is listed. The Study is typical of the superior work being done by Dr. Abrams in developing visual education.